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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/666,008	09/17/2003	William H. Pettit	8540G-000211	6597

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EXAMINER	
MERCADO, JULIAN A	

ART UNIT	PAPER NUMBER
1745	

DATE MAILED: 12/13/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/666,008	PETTIT ET AL.	
	Examiner	Art Unit	
	Julian Mercado	1745	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *16 October 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-44* is/are pending in the application.

4a) Of the above claim(s) *19-44* is/are withdrawn from consideration.

5)☒ Claim(s) *16-18* is/are allowed.

6)☒ Claim(s) *1,2 and 4-15* is/are rejected.

7)☒ Claim(s) *3* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *2003-09-17*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Information Disclosure Statement

The Information Disclosure Statement filed on September 17, 2003 has been considered by the examiner.

Election/Restrictions

Claims 19-44 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on October 16, 2006.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1, 2, 4-11 and 15 are rejected under 35 U.S.C. 102(e) as being anticipated by Assarabowski et al. (U.S. Pat. 6,797,421 B2).

For claims 1 and 10 (which are the independent claims), Assarabowski et al. teaches a fuel cell system comprising a fluid tight enclosure [64] having an outlet [68], a fuel cell [12] and

located in said enclosure, a hydrogen sensor [62] positioned in a vicinity of said outlet, and a catalytic combustion element [66] which reacts with hydrogen. See col. 4 line 7 et seq. and line 54 et seq. and col. 5 line 42 et seq.

Additionally, for claim 10, it is noted that the hydrogen sensor is claimed to include the catalytic combustion element. See the specification, par. [0027]. It appears to the examiner, however, that the claimed hydrogen sensor has a temperature sensing device and a catalytic combustion element which work in tandem as a hydrogen sensor insofar as an increase in temperature from the catalytic combustion of hydrogen confirms the presence of hydrogen. See the last lines of par. [0027]. The claimed hydrogen sensor is considered taught by Assarabowski et al. as the patentees similarly teaches a catalytic combustion element and temperature sensor. Accordingly, claims 6 and 8, which similarly recites the hydrogen sensor as simultaneously detecting and consuming hydrogen, is deemed taught by Assarabowski et al. since the catalytic combustion element also consumes hydrogen.

The outlet, labeled "VENT" in Figure 1, is "to vent gases combusted by burner 66..." See col. 5 line 30 et seq. These vent gases are deemed readable on the claimed ventilation stream. As to the ventilation stream flowing through said enclosure and exiting said enclosure through said outlet and continuously flowing through said enclosure while said fuel cell is operating, these limitations, while considered by the examiner, have not been given patentable weight since these features are drawn to functional and not structural limitations. Notwithstanding, it is asserted that the ventilation stream Assarabowski et al. similarly flows and exits during fuel cell operation.

For claim 2, the fuel cell system comprises a compressor [23].

As to the compressor supplying oxidant gas to the fuel cell and inducing the flow of the ventilation stream limitations, these limitations, while considered by the examiner, have not been given patentable weight, these features being drawn to functional and not structural limitations. It is clear, however, that the compressor supplies oxidant gas to the fuel cell. As to inducing the flow of the ventilation stream, this condition would result during fuel cell operation which would resultantly create the aforementioned vent gases and thereby "facilitate the convective flow." See col. 5 lines 30-34.

Claims 4 and 5 recite functional language which, while considered by the examiner, have not been given patentable weight, as these features fail to give breadth and structural scope to the claimed fuel cell system. The examiner concedes, however, that the cathode effluent in Assarabowski et al. is discharged out of the enclosure via exhaust [24]. See col. 4 line 9.

For claims 7 and 15, and for the aforementioned reasons set forth above for the functional limitation, it is nonetheless asserted that the ventilation stream flows through said catalytic combustion element prior to exiting said enclosure insofar as the ventilation stream is entirely formed by the catalytic combustion element in the form of vent gases. See col. 5 line 30 et seq.

Claim 9, which recites a hydrogen-containing test stream being selectively added to said enclosure to test operation of said hydrogen sensor, while considered by the examiner has not been given patentable weight as it fails to give breadth and structural scope to the claimed fuel cell system and appears premised on a specific method of operation of the fuel cell (in this instance, a method of testing the fuel cell).

Claim 11 recites functional language directed to what the temperature sensor is operable to detect. This limitation, while considered by the examiner, has not been given patentable weight, as these features fail to give breadth and structural scope to the claimed fuel cell system. Notwithstanding, the temperature sensor disclosed by Assarabowski et al. similarly detects a change in temperature as a result of hydrogen reacting in the presence of said catalytic combustion element. See col. 5 lines 57-62.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 12 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Assarabowski et al. (U.S. Pat. 6,797,421 B2) in view of the Process/Industrial Instruments and Controls Handbook.

The teachings of Assarabowski et al.

As to a thermocouple or resistance temperature detector for the temperature sensor, the Handbook teaches that these types of temperature sensors are well-known and additionally would be an obvious substitution to the skilled artisan in recognition of each specific sensor's characteristics in terms of "accuracy, response time, size...", *inter alia*.

Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Assarabowski et al. (U.S. Pat. 6,797,421 B2) in view of Shahinpoor (U.S. Pat. 6,612,739 B2).

The teachings of Assarabowski et al.

As to a temperature sensor including a shape memory alloy, Shahinpoor teaches that this type of temperature sensor is well known and additionally would be an obvious substitution to the skilled artisan in recognition of its ability to provide a "persistent record of temporary out-of-range temperatures." See the Background of the Invention, par. [0003].

Allowable Subject Matter

Claims 16-18 are allowed.

Claim 3 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is an examiner's statement of reasons for allowance: the prior art of record does not teach or suggest the instant invention regarding a portion of the ventilation stream flowing through the coolant prior to exiting through the outlet. Assarabowski et al. teaches a coolant reservoir [34] located in said enclosure and exiting an additional outlet (also labeled "VENT" in the top right corner of Figure 1). The coolant is disclosed to have reactant gases trapped therein, "any reactant gases trapped in the coolant are vented from the plant..." See col. 4 line 30 et seq. While the ventilation stream in Assarabowski et al. are the vented gases combusted by burner [66] and while these vented gases may comprise "reactant gases" in a broad and reasonable sense, the patentees are deemed to teach away from the coolant taking a

part in removing these vent gases. In the gaseous form, the vent gases are directed out the "VENT" (top left corner of Figure 1), as previously discussed. In liquid form, the vent gases are drained via sump [70]. See col. 5 line 35 et seq. Thus, by "any reactant gases" that may be trapped in the coolant, it appears to the examiner that the patentees are referring to the reactant gases formed in the fuel cell reaction and not from catalytic combustion in the burner.

The following is a statement of reasons for the indication of allowable subject matter: the prior art of record does not teach or suggest the instant invention regarding an inlet in the enclosure through which the ventilation stream enters, and an outlet of said enclosure being in fluid communication with an inlet of said compressor. In Assarabowski et al., while the conduits of compressor [23] and compressor [22] may be reasonably interpreted to have inlets, these inlets do not allow for the ventilation stream, which is from inside of the enclosure, to enter therethrough. Furthermore, the inlets of the compressors are in fluid communication with dedicated oxidant sources for air and not the vented gases in the outlet.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Julian Mercado whose telephone number is (571) 272-1289. The examiner can normally be reached on Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick J. Ryan, can be reached on (571) 272-1292. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

jam

PATRICK JOSEPH RYAN
SUPERVISORY PATENT EXAMINER